**In the Claims**

1–12. (Canceled)

13. (Previously amended) An apparatus for controlling the congestion of a buffer circuit, having a depth indication signal, in a data network, the apparatus comprising:

a ~~the~~ data rate monitor coupled to the data network input and accepting a stream of data packets, the data rate monitor outputting the stream of data packets and a control signal indicating the service flow's data packet flow rate;

a flow limiter having a data input coupled to the stream of data packets output from the data rate monitor, the flow limiter also having a control input coupled to the control signal from the data rate monitor, the flow limiter outputting the stream of data packets; and

a congestion controller having a data input coupled to the stream of data packets from the flow limiter, the congestion controller also having a first control input coupled to the control signal from the data rate monitor, a second control input coupled to the depth indication signal, and a third control input coupled to a priority signal, the congestion controller controlling the rate at which the stream of data packets enters the buffer circuit in response to the first, second, and third control signals by dropping predetermined data packets from the stream of data packets.

14. The apparatus of claim 13 wherein the flow limiter further includes a limiting type control input for selectively changing an allowed data packet flow rate.

15. The apparatus of claim 13 wherein the data rate monitor is coupled to a plurality of cable modems.

16–18. (Canceled)

19. (Previously amended) A method for a cable modem to communicate with a cable modem termination system, the cable modem being assigned a predetermined service level, the cable modem termination system comprising a buffer circuit for temporarily storing data packets, the method comprising the steps of:

the cable modem and the cable modem termination system performing a ranging step to determine a channel and power level for communication that is acceptable to the cable modem termination system;

the cable modem registering with the cable modem termination system;

the cable modem requesting additional bandwidth beyond the predetermined service level;

communicating data packets from the cable modem to the cable modem termination system;

determining a priority level of the data packets;

determining an average depth of the buffer circuit;

determining a service flow associated with the data packets;

determining a flow rate of the service flow associated with the data packets; and

processing the data packets in response to the average depth of the buffer circuit, the flow rate, and the priority.

20. The method of claim 19 wherein the step of processing includes dropping packets in response to the average depth of the buffer circuit, the flow rate and the priority.

21. The method of claim 19 wherein the step of registering includes the cable modem termination system assigning an Internet protocol address to the cable modem.

22. (Previously amended) A cable modem termination system comprising:

a buffer circuit comprising:

a buffer depth indication signal that indicates the amount of memory not being used;

a cable modem interface comprising:

a plurality of data rate monitors, a first monitor for monitoring a data packet flow rate in an upstream path and a second monitor for monitoring the data packet flow rate in a downstream path, each monitor generating a flow rate indication signal;

a plurality of flow limiters, a first flow limiter, coupled to the first data rate monitor, limiting the flow rate in the upstream path and a second flow limiter, coupled to the second data rate monitor, limiting the flow rate in the downstream path, both flow limiters acting in response to the respective flow rate indication signal; and

a congestion controller, coupled to the first flow limiter, for controlling the flow of data into the buffer circuit in response to the flow rate indication signal, the buffer depth indication signal, and a packet priority signal generated from the data packets; and

an Ethernet interface comprising:

a data rate monitor, coupled to the Internet, for monitoring the data packet flow rate in the downstream path, the data rate monitor generating a flow rate indication signal;

a flow limiter, coupled to the data rate monitor, for limiting the flow rate in the downstream path, the flow limiter acting in response to the flow rate indication signal;

a congestion controller, coupled to the flow limiter, for controlling the data packets flowing into the buffer circuit in response to the flow rate indication signal, the buffer depth indication signal, and a packet priority signal generated from the data packets.